UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/650,461	08/27/2003	David Dawes	10655.0025-00	7106

22852 7590 10/28/2008

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

EXAMINER	
RADKOWSKI, PETER	

ART UNIT	PAPER NUMBER
2883	

MAIL DATE	DELIVERY MODE
10/28/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/650,461	DAWES, DAVID	
	Examiner	Art Unit	
	PETER RADKOWSKI	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) *2 and 15-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3-14, and 21-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/10/2004, 2/10/2005, 8/10/2006, 2/20/2007, 7/9/2007, 10/24/2007, 5/7/2008, and 8/28/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Office Action

Response to Applicant's Arguments

1. Applicant cancelled Claims 2 and 15-20.

2. Applicant's arguments with respect to Claims 1, 3-14 and 21-25 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3-4,6-7, 9-12 and 21-25

4. **Claims 1, 3-4, 6-7, 9-12, and 21-25 are rejected** under 35 U.S.C. 103(a) as being obvious over Kaneko et al. (6,088,492; "Kaneko") in view of Bazylenko (6,549,688; "Bazylenko")

Claims 1, 3-4, 6-7, 9-12, and 21-25, Kaneko teaches an optical waveguide device [10] comprising integrated laser diodes [16] and amorphous, film-based smooth-surface waveguides, with finely tuned index of refraction, doped with titanium-oxides or aluminum oxides and a refractive index contrast of at least 0.2% (See Kaneko, fig. 6; Abstract; col. 1, ll. 35-60; col. 3, l. 38 - col. 4 - l. 33; col. 6, ll. 1-5; col. 15, ll. 35-45)

Further regarding Claims 1, 3-4, 6-7, 9-12, and 21-25, Kaneko does not explicitly teach a buffer layer disposed between amorphous waveguide and substrate. However, Bazylenko teaches an amorphous metal-oxide based waveguide core [440] disposed over a buffer layer [450] which is disposed over a substrate [460]. (See Bazylenko, fig. 6; col. 10, ll. 18-37) Since Kaneko and Bazylenko both teach integrated waveguide systems, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kaneko to have the Buffer layer taught by Bazylenko because the resultant configuration would accommodate integrated waveguide and amplifier configurations. (See Bazylenko, col. 9, ll. 49-60) One would have been motivated to make this modification because the integration of waveguides and devices on a single substrate would enhance the signal quality and optical alignment of optical networks comprising the integrated device.

Claims 1 and 5

5. **Claims 1 and 5 are rejected** under 35 U.S.C. 103(a) as being obvious over Kaneko et al. (6,088,492; "Kaneko") in view of Bazylenko (6,549,688; "Bazylenko") and further in view of Beach (Non-Patent Literature: Theory and optimization of lens ducts; "Beach").

Regarding Claim 1, Kaneko in view of Bazylenko teaches a substrate-integrated slab waveguide and active-device configuration. (See above)

Regarding Claim 5, Kaneko in view of Bazylenko does not explicitly teach that the slave waveguide configuration comprises a lens duct. However, Beach teaches a waveguide device with a lens duct. (See Beach, Abstract) Since Kaneko, Bazylenko and Beach all teach waveguide devices, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kaneko in view of Bazylenko to have the lens duct configuration taught by Beach because the resultant configuration would facilitate optical coupling between a laser diode and a waveguide. (See Beach, Abstract) One would have been motivated to make this modification because the enhanced optical coupling of an integrated optical device would improve the signal quality of networks comprising the integrated device.

Claims 1, 7 and 8

6. **Claims 1, 7 and 8 are rejected** under 35 U.S.C. 103(a) as being obvious over Kaneko et al. (6,088,492; "Kaneko") in view of Bazylenko (6,549,688; "Bazylenko") and further in view of Henrichs (2003/0185266; "Henrichs").

Regarding Claims 1 and 7, Kaneko in view of Bazylenko teaches a substrate-integrated slab waveguide and active-device configuration. (See above)

Regarding Claim 8, Kaneko in view of Bazylenko does not explicitly teach a slab waveguide folded within the plan of the slab. However, Henrichs teaches an integrated waveguide configuration comprising a slab waveguide folded with the plane of the slab. (See Henrichs, Abstract) Since Kaneko, Bazylenko and Henrichs all teach waveguide configurations, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kaneko in view of Bazylenko to have the folded configuration taught by Henrichs because the resultant configuration would have enhanced light-emitting efficiencies. (See Henrichs, par. [0008]) One would have been motivated to make this modification because increasing integrated optical device efficiencies would enhance the efficiency of an optical network comprising the integrated optical device.

Claims 1 and 10-14

7. **Claims 1 and 10-14 are rejected** under 35 U.S.C. 103(a) as being obvious over Kaneko et al. (6,088,492; "Kaneko") in view of Bazylenko (6,549,688; "Bazylenko") and further in view of Zhou et al. (2003/0044118; "Zhou")

. **Regarding Claims 1, 11 and 12**, Kaneko in view of Bazylenko teaches a substrate-integrated slab waveguide and active-device configuration. (See above)

Regarding Claims 10, 13 and 14, Kaneko in view of Bazylenko does not explicitly teach a tapered slab waveguide with a mode-size converter. However, Zhou teaches integrated waveguide structures comprising tapered mode-size converter waveguide configurations. (See Zhou, Abstract) Since Kaneko, Bazylenko and Zhou all teach waveguide configurations, it would have been obvious to one of ordinary skill in the art to modify Kaneko in view of

Bazylenko to have the tapered mode-size converter taught by Zhou because the resultant configuration would facilitate bi-directional waveguide devices. (See Zhou, Abstract) One would have been motivated to make this modification because bi-directional integrated waveguide and active-device configurations lowers the volume and footprint required for optical networks comprising the integrated waveguide and active-device configuration.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please refer to Form 892 for additional references cited but not used in this office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Radkowski whose telephone number is (571) 270-1613. The examiner can normally be reached on Monday - Thursday, 8 AM to 5 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font, can be reached on (517) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, See http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free). If you

would like assistance from a USPTO Customer Service Representative or access to the automated information system, call (800) 786-9199 (IN USA OR CANADA) or (571) 272-1000.

/Peter Radkowski/
Patent Examiner, Art Unit 2883

/James P. Hughes/
Primary Examiner, Art Unit 2883